The Hæmatinic Properties of Dialyzed Iron.

Dr. ROBERT AMORY has recently made some very careful observations (*Boston Med. and Surg. Journal*, April 3, 1879) by the aid of Gower's hæmacytometer, to determine the influence of dialyzed iron on the globular richness of the blood. An analysis of the clinical history of the five cases in which the observations were made shows that none of them had any organic disease; that they were aware of being out of their usual health; that they were unable to accomplish their regular work; that none had impaired appetite, nor feeble digestion; that three of the four suffered from neuralgia or headache; finally, all had diminished corpuscular richness of blood, varying from 3,350,000 to 4,000,000, and that under the continued use of ninety drops of solution of dialyzed iron pei diem this condition of impoverished blood was replaced by an increase in the number of corpuscles, from 3,600,000 to 4,900,000, and the symptoms of ill health simultaneously disappeared with this improvement. We are informed that Wyeth's dialyzed iron was used in these observations.

Physiological Action of Sclerotic Acid.

It was announced some time ago by Dragendorff and Podwisotsky that they had succeeded in obtaining from ergot two new principles, *scleromucin* and *sclerotic acid*, and that to these principles the physiological activity of ergot was really due. A good sample of ergot ought to contain from 4 to 4.5 per cent. of sclerotic acid, and from 2 to 3 per cent. of scleromucin. The former substance is an amorphous crystalloid, soluble in water and very dilute spirit, insoluble in absolute alcohol and ether. A few experiments made on frogs appeared to show that sclerotic acid had a powerful effect upon the nervous system. NIKITIN has just carried out a more complete investigation of its properties in Professor Rossbach's laboratory at Würzburg. (Rossbach's *Pharmakologische Untersuchungen*, iii. 1 and 2.) The following are the principal conclusions at which he has arrived: 1. Sclerotic acid exhibits all the physiological and therapeutic actions of ergot, and ought, therefore, to be regarded as its principal constituent. Sodium sclerotate is identical with sclerotic acid in its properties, but is somewhat less powerful. 2. Cold-blooded animals are very susceptible to the influence of sclerotic acid. Among warm-blooded animals, carnivora are more readily affected by it than herbivora. 3. The chief action of sclerotic acid is upon the nerve-centres. In frogs, the reflex excitability of the spinal cord is first depressed, then annulled; in warm-blooded animals it is greatly reduced, but never wholly destroyed. 4. The peripheral terminations of the sensory nerves are only paralyzed by sclerotic acid when this is brought into direct contact with them. Neither motor nerves nor striped muscles are affected by it. 5. The heart's action is depressed by sclerotic acid in frogs, but not in mammals, even when the dose is relatively large. 6. Poisonous doses lower the blood-pressure and temperature. 7. The respiratory movements are always slowed; after a lethal dose, they cease before the heart stops beating. 8. The peristaltic movements of the intestine are always accelerated in warm-blooded animals. 9. The uterus, whether gravid or not, is always excited to contraction. Existing contractions are intensified. 10. The hæmostatic action of sclerotic acid in pulmonary hemorrhage may be accounted for by its lowering the blood-pressure. Its controlling influence on hemorrhage from the bowel or uterus is due to a different cause, viz., to the anæmia resulting from vascular spasm in those organs. 11. The immediate cause of death in mammals after a fatal dose of sclerotic acid is arrest of the respiratory movements.

The advantages to be anticipated from the substitution of sclerotic acid for ergot in actual practice are: the smaller dose required; the tastelessness of the powder;

its permanence when kept in a dry place. Neither the acid nor its sodium salt are suited for hypodermic administration; for, though they do not appear to set up local inflammation, they give rise to acute pain. The appropriate dose for the human subject may be determined without much risk of accident; for they are from ten to a hundred times less poisonous than the majority of medicinal alkaloids.—*London Med. Record*, March 15, 1879.

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Physiological Action of Nicotine.

René, the author of this interesting thesis (*Thèse de Nancy*, 1878), which has obtained an honourable mention from the faculty of Nancy (*Rev. Méd. de l'Est*, No. 4, February 15, 1879), has wisely abstained from traversing too wide a field of researches. He has omitted the action of nicotine on the heart and circulation, and restricted himself to the changes which occur in the nervous and muscular systems after the drug has been introduced into the body. The thesis is divided into three parts, the first is a historical sketch of the different opinions which have prevailed on the effect of nicotine at different times; the second part contains a detailed account of the author's experiments, and the third a detailed analysis of the results he has obtained. One hundred and seventy-two experiments were performed on frogs principally, then on dogs, cats, rabbits, guinea-pigs, mice, pigeons, and a snake. The poison enters the system by every avenue, and always produces quickly the characteristic toxic symptoms. If injected through the veins the effect is as quick as lightning. The statement rather contradicts what has been universally assumed about the slower action of the hypodermic injections or the quicker action of nicotine given as an enema. The immunity which certain animals are said to possess against it has not been proved, but the poisonous dose is not proportionate to the weight of the animal.

The intoxicated muscle loses, almost immediately after it has been pervaded by the poison, the power of contracting when stimulated by the galvanic current; the action of the nerves is also quickly paralyzed. This loss of contractility is due to direct intoxication, not to its having reached the maximum of contraction. The nervous motility is destroyed first and has ceased to exist when muscular contractility still persists, but the intoxication spreads rapidly from the nerve to the muscular fibre. The central nervous system is first attacked by the nicotine; the first symptoms of this excitation are the spasms, which the author describes in a very characteristic way. They consist in a trembling of the whole body very much like that experienced in a violent fit of shivering; it is a vibration of the muscular wavelets; a trembling of every muscle, or rather of every fibre; a series of tetanic shocks, which follow each other closely but are never united in one contraction. This trembling is principally due to an irritation of the cephalic centres rather than of the medullary centres. This is one of the most characteristic differences between strychnine and nicotine. Sensibility is also diminished or destroyed by nicotine, likewise the reflex power of the medulla; if the doses are not very high the non-striated muscles retain their power of contractility longer than the striated muscles.

After small doses the respiration is quickened at first, then it becomes gradually slower, but deeper and stronger, and stops. The expiration assumes the type which follows section of the pneumogastric nerve, this might lead to the inference that one of these nerves has been paralyzed by the action of the drug.

The blood presents a red colouring, which is characteristic of nicotine poisoning, but no particular changes have been detected in it by means of either the microscope or the spectroscope. The spermatozoa become motionless. Bile has no effect on nicotine, which produces the same symptoms, although less rapidly,